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ethylene and at least one olefin selected from olefins of 3 to 20 carbon atoms, dienes and cycloolefins, and a copolymer of propylene and at least one olefin selected from olefins of 4 to 20 carbon atoms, dienes and cycloolefins, wherein said olefin polymer has a number-average molecular weight of not less than 110,000 and the ratio of number average molecular weight and weight average molecular weight (Mw/Mn) is not more than 1.5; and

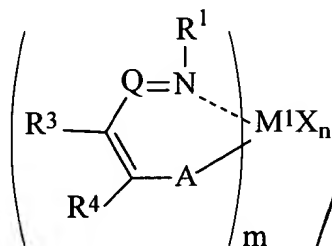
wherein said olefin polymer has a melting point of not lower than 70°C and has a racemic diad (R), as measured by ¹³C-NMR, of not less than 0.85.

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26. (Twice amended) The olefin polymer as claimed in claim 1, which has a functional group at the terminal of the main chain.

27. (Twice amended) A molded product comprising the olefin polymer of claim 1.

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29. (Amended) A process for preparing an olefin polymer, comprising polymerizing an olefin of 2 to 20 carbon atoms in the presence of an olefin polymerization catalyst comprising a transition metal compound which is represented by the following

formula (II-a) or (II-b) and has the following properties: (i) in a β -agostic structure of a cationic complex wherein one of X in the formula (II-a) or (II-b) is replaced with a n-propyl group, said structure being measured by a density functional method, the distance between the heteroatom, which has no direct bond to the central metal M and is nearest to the central metal M and is selected from the group consisting of halogen, nitrogen, oxygen, phosphorus, sulfur and selenium, and hydrogen at the β -position is not more than 3.0 Å; and (ii) the electrostatic energy is not more than 10 KJ/mol;



Formula (II-a)

wherein M^1 is a transition metal atom selected from Group 3 to Group 10 of the periodic table,

m is an integer of 1 to 5 and the sum of m and n is a number satisfying a valence of M^1 ,

Q is a nitrogen atom or a carbon atom having a substituent R^2 ,

A is an oxygen atom, a sulfur atom, a selenium atom or a

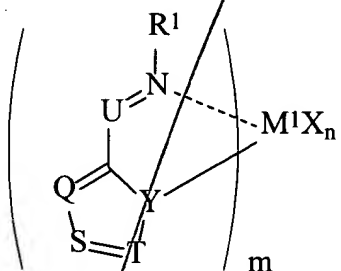
nitrogen atom having a substituent R^5 ,

R^1 is a hydrocarbon group having one or more heteroatoms or a hydrocarbon group having one or more heteroatom-containing groups, wherein said heteroatom is selected from the group consisting of halogen, nitrogen, oxygen, phosphorus, sulfur and selenium,

R^2 to R^5 may be the same or different and are each a hydrogen atom, a halogen atom, a hydrocarbon group, a hydrocarbon-substituted silyl group, an oxygen-containing group, a nitrogen-containing group, a sulfur-containing group, a boron-containing group, an aluminum-containing group, a phosphorus-containing group, a halogen containing group, a heterocyclic compound residue, a silicon-containing group, a germanium-containing group or a tin-containing group, two or more of R^2 to R^5 may be bonded to form a ring, and when m is 2 or greater, R^1 s, R^2 s, R^3 s, R^4 s and R^5 s may be the same or different, and one group of R^2 to R^5 contained in one ligand and one group of R^2 to R^5 contained in other ligands may be bonded,

and X is an oxygen atom, a hydrogen atom, a halogen atom, a hydrocarbon group, an oxygen-containing group, a sulfur-containing group, a nitrogen-containing group, a boron-containing group, an aluminum-containing group, a phosphorus-containing group, a halogen-containing group, a heterocyclic compound residue, a silicon-

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containing group, a germanium-containing group or a tin-containing group, and when n is 2 or greater, plural groups indicated by X may be the same or different, and plural groups indicated by X may be bonded to form a ring;



Formula (II-b)

wherein M^1 is a transition metal atom selected from Group 3 to Group 10 of the periodic table,

m is an integer of 1 to 5 and the sum of m and n is a number satisfying a valence of M^1 ,

Y is a nitrogen atom or a phosphorus atom,

U is a carbon atom having a substituent R^6 , a nitrogen atom or a phosphorus atom,

Q is a carbon atom having a substituent R^7 , a nitrogen atom or a phosphorus atom,

S is a carbon atom having a substituent R^8 , a nitrogen atom or a phosphorus atom,

T is a carbon atom having a substituent R^9 , a nitrogen atom or a

phosphorus atom,

R^1 is a hydrocarbon group having at least one heteroatom or a hydrocarbon group having at least one heteroatom-containing group wherein said heteroatom is selected from halogen, nitrogen, oxygen, phosphorus, sulfur and selenium,

R^6 to R^9 may be the same or different and are each a hydrogen atom, a halogen atom, a hydrocarbon group, a hydrocarbon-substituted silyl group, an oxygen-containing group, a nitrogen-containing group, a sulfur-containing group, a boron-containing group, an aluminum-containing group, a phosphorus-containing group, a halogen containing group, a heterocyclic compound residue, a silicon-containing group, a germanium-containing group or a tin-containing group, two or more of R^6 to R^9 may be bonded to form a ring, and when m is 2 or greater, R^1 's, R^6 's, R^7 's, R^8 's and R^9 's may be the same or different, and one group of R^6 to R^9 contained in one ligand and one group of R^6 to R^9 contained in other ligands may be bonded,

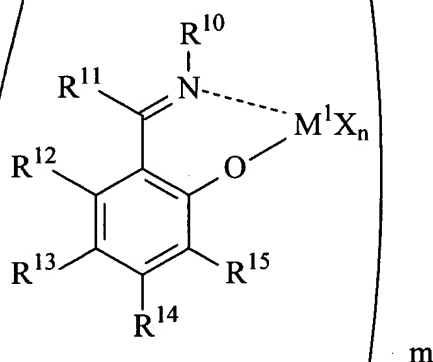
and X is an oxygen atom, a hydrogen atom, a halogen atom, a hydrocarbon group, an oxygen-containing group, a sulfur-containing group, a nitrogen-containing group, a boron-containing group, an aluminum-containing group, a phosphorus-containing group, a halogen-containing group, a heterocyclic compound residue, a silicon-

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containing group, a germanium-containing group or a tin-containing group, and when n is 2 or greater, plural groups indicated by X may be the same or different, and plural groups indicated by X may be bonded to form a ring.

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30. (Amended) A process for preparing an olefin polymer, comprising polymerizing an olefin of 2 to 20 carbon atoms in the presence of an olefin polymerization catalyst comprising a transition metal compound which is represented by formula (II-a) or (II-b) in claim 29, wherein R¹ is an aromatic hydrocarbon group, an aliphatic hydrocarbon group or an alicyclic hydrocarbon group, wherein said aromatic hydrocarbon group is a phenyl group having, at least one position of the 2-position and the 6-position, when the position of the carbon atom bonded to nitrogen is the 1-position, one or more substituents selected from a halogen atom and a halogen-containing group, or a phenyl group having, at least one position of the 3-position, the 4-position and the 5-position, at least one substituent selected from a fluorine-containing group having one carbon atom and not more than two fluorine atoms, a fluorine-containing group having two or more carbon atoms, a chlorine atom, a bromine atom, an iodine atom, a chlorine-containing group, a

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bromine-containing group and an iodine-containing group, an aromatic hydrocarbon group other than a phenyl group having at least one substituent selected from a halogen atom and a halogen-containing group, an aliphatic hydrocarbon group having at least one substituent selected from a halogen atom and a halogen-containing group, or an alicyclic hydrocarbon group having at least one substituent selected from a halogen atom and a halogen-containing group.

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Claim 32. (Amended) A process for preparing an olefin polymer, comprising polymerizing an olefin of 2 to 20 carbon atoms in the presence of an olefin polymerization catalyst comprising a transition metal compound which is represented by the following formula (III);



...(III)

wherein M^1 is a transition metal atom selected from Group 4 to Group 5 of the periodic table,

m is 1 or 2 and the sum of m and n is a number satisfying a valence of M^1 ,

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 R^{10} is an aromatic hydrocarbon group, an aliphatic hydrocarbon group or an alicyclic hydrocarbon group, when R^{10} is a phenyl group and the position of the carbon atom bonded to nitrogen is the 1-position, the phenyl group has, at least one position of the 2-position and the 6-position, one or more substituents selected from a heteroatom and a heteroatom-containing group, or has, at least one position of the 3-position, the 4-position and the 5-position, at least one substituent selected from a heteroatom selected from the group consisting of halogen, nitrogen, oxygen, phosphorus, sulfur and selenium, other than a fluorine atom, a fluorine-containing group having one carbon atom and not more than two fluorine atoms, a fluorine-containing group having two or more carbon atoms, and a group containing a heteroatom other than a fluorine atom, and when R^{10} is an aromatic hydrocarbon group other than a phenyl group, an aliphatic hydrocarbon group or an alicyclic group, the group has at least one substituent selected from a heteroatom and a heteroatom-containing group,

R^{11} to R^{14} may be the same or different and are each a hydrogen atom, a halogen atom, a halogen-containing group, a hydrocarbon

C1 group, a hydrocarbon-substituted silyl group, an oxygen-containing group, a nitrogen-containing group or a sulfur-containing group,

R¹⁵ is a halogen atom, a halogen-containing group, a hydrocarbon group or a hydrocarbon-substituted silyl group, and

B4 X is an oxygen atom, a hydrogen atom, a halogen atom, a hydrocarbon group, an oxygen-containing group, a sulfur-containing group, a nitrogen-containing group, a boron-containing group, an aluminum-containing group, a phosphorus-containing group, a halogen-containing group, a heterocyclic compound residue, a silicon-containing group, a germanium-containing group or a tin-containing group, and when n is 2 or greater, plural groups indicated by X may be the same or different, and plural groups indicated by X may be bonded to form a ring.

Please add the following new claims:

B5 --45. (new) The process of claims 29, 30 and 32, wherein the hydrocarbon group is selected from the group consisting of alkyl, C₃₋₃₀ cycloalkyl, alkenyl, arylalkyl, aryl and C₁₋₂₀ halogenated hydrocarbons wherein at least one hydrogen is replaced with a halogen.

C 46. (new) The process of claims 29 and 32, wherein the oxygen containing group is selected from the group consisting of hydroxy, alkoxy, aryloxy, arylalkoxy, acetoxy and carbonyl group.

fits into structure?

47. (new) The process of claims 29 and 32, wherein the nitrogen containing group is selected from the group consisting of amino, alkylamino, arylamino and alkylaryl amino.

B5 48. (new) The process of claims 29 and 32, wherein the sulfur containing group is selected from the group consisting of sulfonato groups, sulfinato groups, alkylthio groups and arylthio groups.

49. (new) The process of claims 29 and 32, wherein the boron containing group is BR_4 wherein R is hydrogen, halogen, an alkyl group or an optionally substituted aryl group.

change??

50. (new) The process of claims 29 and 32, wherein the aluminum containing group is AlR_4 wherein R is hydrogen, halogen, an alkyl group or an optionally substituted aryl group.

51. (new) The process of claims 29 and 32, wherein the phosphorus containing group is selected from the group consisting of trialkylphosphine, triarylphosphine, phosphite, phosphonic acid and phosphinic acid.

52. (new) The process of claims 29, 30 and 32, wherein the halogen containing group is selected from the group consisting of fluorine containing groups, chlorine containing groups and iodine containing groups.

53. (new) The process of claims 29 and 32, wherein the heterocyclic compound residue is selected from the group consisting of optionally substituted residues of nitrogen containing groups, optionally substituted residues of oxygen containing groups and optionally substituted residues of sulfur containing groups, wherein the substituent is an C_{1-30} alkyl group or alkoxy group.

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54. (new) The process of claims 29 and 32, wherein the silicon containing group is selected from the group consisting of hydrocarbon-substituted silyl groups, hydrocarbon-substituted silyl ether groups, silicon-substituted alkyl groups and silicon-substituted aryl groups.

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55. (new) The process of claims 29 and 32, wherein the germanium containing group is selected from the group consisting of hydrocarbon-substituted germanium groups, hydrocarbon-substituted germanium ether groups, germanium-substituted alkyl groups and germanium-substituted aryl groups.

56. (new) The process of claims 29 and 32, wherein the tin containing group is selected from the group consisting of hydrocarbon-substituted tin groups, hydrocarbon-substituted tin ether groups, tin-substituted alkyl groups and tin-substituted aryl groups.--

Attached hereto is a marked-up version of the changes made to the application by this Amendment.